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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,818	10/31/2003	Levi T. Thompson	2115-002542	2440
27572	7590	09/20/2004		EXAMINER
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303				HAILEY, PATRICIA L
			ART UNIT	PAPER NUMBER
			1755	

DATE MAILED: 09/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/698,818	THOMPSON ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Patricia L. Hailey	1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 20 August 2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 14-21 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-4,6-13 and 22-29 is/are rejected.
- 7) Claim(s) 5 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All
  - b) Some \*
  - c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____.
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>2/10/04</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____.

***Election/Restrictions***

1. Applicant's election with traverse of Group I, claims 1-13 and 22-29, in the reply filed on August 20, 2004, is acknowledged. The traversal is on the ground(s) that maintaining both groups of claims in the same application "would not cause undue hardship for the Examiner". This is not found persuasive because the Examiner's reasons for the restriction requirement are not due to "undue hardship". In the restriction requirement, the claims were shown to be independent and distinct. An inventive water gas shift reaction is considered independent and distinct from a catalyst employed in said reaction, as well as a method of producing said catalyst. With respect to Applicants' claims, the elected "catalyst composition" and method for preparing a "supported transition metal composition" is independent from the non-elected water gas shift reaction, because Applicants have not shown how "the catalyst composition and method of preparing a supported transition metal composition claims generally parallel the method for carrying out a water gas shift reaction claims".

For these reasons, the requirement is still deemed proper and is therefore made FINAL.

2. Claims 14-21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected method for carrying out a water gas shift reaction, there being no allowable generic or linking claim. Applicant timely

traversed the restriction (election) requirement in the reply filed on August 20, 2004.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1-4, 7-13, and 22-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Thompson et al. (U. S. Patent No. 6,297,185).**

Thompson et al. disclose a catalyst comprised of a support body that is a transition metal based, electrically conductive ceramic, and of at least one noble metal supported on the support body. The ceramic comprises a compound of at least one transition metal, the compound being selected from the group consisting of carbides, nitrides, borides, silicides, and combinations thereof. The noble metal may comprise a single metal, or may be an alloy of metals. Exemplary noble metals include platinum, palladium, osmium, iridium, gold, ruthenium, and rhodium. See col. 2, lines 24-39 and col. 1, lines 26-34 of Thompson et al.

The transition metals in the electrically conductive ceramic most preferably comprise transition metals from Groups III-VII; most specifically preferred

transition metals include those from Groups V and VI. See col. 3, lines 6-19 of Thompson et al.

The Examples of Thompson et al. show a catalyst comprising approximately 10% platinum supported on tungsten carbide, as well as 6.2% platinum and 3.1% ruthenium on tungsten carbide (Examples 1 and 3), and further show that carbides, as well as nitrides, of transition metals such as molybdenum, are suitable ceramic supports (Example 4). The Examples further show exemplary methods of making the catalysts, wherein chloroplatinic acid is dissolved in water to produce a solution having a pH of about 2, and sodium bisulfite is added to raise the pH to about 3.5. (Optionally, a second metal can be incorporated, e.g., ruthenium; if such is the case, ruthenium trichloride is dissolved in water and added to the platinum solution). The pH is adjusted to approximately 5 via addition of sodium carbonate, and hydrogen peroxide is added to adjust the pH to between 3 and 5, and the solution is allowed to stand to permit excess peroxide to decompose. The ceramic support is then added to the solution to produce a slurry, which is subjected to stirring and hydrogen bubbling to reduce the metallic ions into free metal that precipitates onto the surface of the ceramic.

Another exemplary method involves dissolving hexachloroplatinic acid in methanol, followed by adding thereto a tungsten carbide ceramic powder. The methanol is removed by evaporation under vacuum to produce a dry powder. The powder is placed in a tube, through which a mixture of hydrogen and nitrogen is

flowed (considered to read upon the limitation “absence of oxygen” in claim 29). The tube is heated to 110°C, and then to 400°C, at which reduction of the chloroplatinic acid takes place. Following reduction, a passivating atmosphere comprising 1% oxygen and the balance nitrogen and a temperature adjustment to 350°C is created within the tube.

In view of these teachings, Thompson et al. anticipate claims 1-4, 7-13, and 22-29.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. **Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson et al. (U. S. Patent No. 6,297,185).**

Thompson et al. is relied upon for its teachings stated in the above 102(b) rejection. While this reference teaches that gold is a known noble metal (col. 1, lines 32-34), the reference does not specifically teach the limitations of claim 6, namely a catalyst comprising gold on a support comprising a material of the formula recited in claim 1.

However, Thompson et al. at col. 4, lines 1-11 teach that Patentees' "present invention may be employed with **any noble meal (sic) catalyst system.**" (Emphasis added by Examiner). Thus, it would have been obvious to one of ordinary skill in the art to employ gold as a noble metal to be supported on an electrically conductive ceramic, such as carbides or nitrides of transition metals

such as molybdenum or tungsten, and thereby obtain Applicants' claimed catalyst composition.

*Allowable Subject Matter*

**9. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**

**10. The following is a statement of reasons for the indication of allowable subject matter:**

Thompson et al. do not teach or suggest the limitations of claim 5, namely a catalyst comprising nickel on a support comprising a material of the formula recited in claim 1.

*Conclusion*

**11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia L. Hailey whose telephone number is (571) 272-1369. The examiner can normally be reached on Mondays-Thursdays.

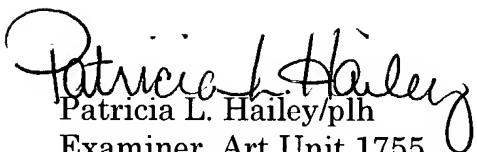
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark L. Bell can be reached on (571) 272-1362. The fax

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phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 1700 Receptionist, whose telephone number is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Patricia L. Hailey/plh  
Examiner, Art Unit 1755  
September 14, 2004

  
Mark L. Bell  
Supervisory Patent Examiner  
Technology Center 1700